

Auroral display of February 13, 1892.

Station.	Extent of display.		Remarks.
	Azimuth.	Altitude.	
Portland, Me	Covered 90	15	Color of arch bright red, with flashes to zenith.
Manchester, N. H.	In the NW.		Pink and crimson deepening to bright red, and beams of yellow and green; corona formed.
Northfield, Vt.	110 to 225	60	Rose color, with streamers.
Boston, Mass.	120 to 210	Zenith	Very brilliant at 7.45 p. m.
New York, N. Y.	140 to 220	35	Pale green changing to dull red.
Ithaca, N. Y.	125 to 195	80	Pink changing to red, with shafts of white light.
Philadelphia, Pa.	158 to 203		Brilliant red west of low arch of straw color.
Blue Knob, Pa.	135 to 180		Mass of red, with white arches and a red arch.
Baltimore, Md.	120 to 180	30	Varying brilliancy.
Washington, D. C.	135 to 215	30	Bright rosy red to deep crimson, with grayish bands, and streamers inclining slightly to northward.
Lynchburgh, Va.	155 to 205		An arch of red tinged with purple resting on a dark segment.
Charlotte, N. C.	95 to 105	25	Deep red, fan-shaped, with shafts of yellow.
Mico, Fla.	135 to 225	25	Arch of pale light changing to pink. Obscured by clouds at 7.30 p. m.
Parkersburgh, W. Va.	In the N.		Brilliant rose-colored streamers shot up from dark segment.
Cincinnati, Ohio			Dull red glow in north obscured by clouds.
Cleveland, Ohio	135 to 190	55	Color deep green to altitude 25°, with beams of bright corn color to altitude 55°.
Vevay, Ind.			Red and yellow streamers to the zenith.
Chicago, Ill.	135 to 225	55	Pink to deep red, with broad rays of white shooting upward.
Lexington, Ky.	155 to 192	46	Pale red, with white bands. Red in northwest.
Louisville, Ky.		30	Brilliant crimson.
Nashville, Tenn.	165 to 195	45	Rose color. Obscured by clouds.
Detroit, Mich.	In the NW.	90	Pink to crimson, with streamers to the zenith.
Port Huron, Mich.	90 to 270		Delicate pink to deep red, with white rays.

Auroral display of February 13, 1892—Continued.

Station.	Extent of display.		Remarks.
	Azimuth.	Altitude.	
Sault de Ste. Marie, Mich.	120 to 240	80	Dark red changing to pink.
Marquette, Mich.	90 to 180	90	Diffused light changing to rose red.
Grand Haven, Mich.	90 to 270	85	Rose red arch on dark segment, with white and pale pink streamers.
Milwaukee, Wis.	90 to 270	70	Dingy red changing to deep pink.
Saint Paul, Minn.	90 to 180	85	Purple glow resting on dark segment.
Saint Vincent, Minn.	90 to 270	90	Belt of red, with white streamers moving from west to east.
Duluth, Minn.	In the N.	90	Bright pink color.
Davenport, Iowa	150 to 220	60	Bright purple to rosy red, with luminous beams and "merry dancers."
Saint Louis, Mo.	In the N.	30	Red changing to scarlet.
Huron, S. Dak.	90 to 215	90	Bright rose, with lighter beams.
Bismarck, N. Dak.	110 to 250	50	Reddish tint, with bright streamers.
Fort Assinaboine, Mont.	135 to 280		Occurred in morning. Parallel beams of purple and red.

Auroras were also reported as follows: 24th, in the Dakotas, Iowa, Wisconsin, and east New England. 25th, in east Montana, the Dakotas, Iowa, and Wisconsin. 26th, in east Montana, the Dakotas, Iowa, Wisconsin, Upper Michigan, and east New England. 29th, in east Montana, the Dakotas, Minnesota, Iowa, Wisconsin, and Upper Michigan. Auroras were noted along the trans-Atlantic steamship tracks east of the 40th meridian from the 14th to 17th. From the 22d to 28th, between N. 58°, W. 37° and N. 52°, W. 36°, nightly displays resembling a subdued twilight were reported. A white arch of altitude 25° to 30°, with streamers to altitude 45° generally appeared. The arch rested on a dark segment and stars were visible below, through, and above the arch. Auroras were also observed along the steamship tracks between the 30th and 50th meridians from the 24th to 27th.

STATE WEATHER SERVICES.

[*Temperature in degrees Fahrenheit; precipitation, including melted snow, in inches and hundredths.*]

The following extracts and summaries are republished from reports for February, 1892, of the directors of the various state weather services:

ALABAMA.

Temperature.—The mean was 3.5 above the normal; maximum, 83, at Daphne, 4th and 23d; minimum, 18, at Valley Head, 13th; greatest monthly range, 53, at Healing Springs; least monthly range, 34, at Citronelle.

Precipitation.—The average was 1.55 below the normal; greatest monthly, 3.91, at Maysville; least monthly, 1.12, at Bermuda.

Wind.—Prevailing directions, northeast and southeast.—*P. H. Mell, Observer, Weather Bureau, Auburn, director.*

ARIZONA.

The month has been favorable for agriculture and cattle interests.

Temperature.—Maximum, 89, at Fort Mohave, 21st; minimum, 7, at Holbrook and Payson, 10th; greatest monthly range, 59, at Payson; least monthly range, 30, at Gila Bend.

Precipitation.—Greatest monthly, 5.34, at Farleys Camp; least monthly, 0.03, at Buckeye.

Wind.—Prevailing direction, west.—*J. C. Hayden, Observer, Weather Bureau, Tucson, director.*

ARKANSAS.

Temperature.—The mean was 5.2 above the normal; maximum, 78, at Texarkana, 7th; minimum, 18, at Rogers, 16th; greatest monthly range, 53, at Keesees Ferry; least monthly range, 32, at Newport.

Precipitation.—The average was 1.29 below the normal; greatest monthly, 6.50, at Madding; least monthly, 1.24, at Keesees Ferry.

Wind.—Prevailing direction, north.—*M. F. Locke, Commissioner of Agriculture, Little Rock, director; F. H. Clarke, Observer, Weather Bureau, assistant.*

CALIFORNIA.

Temperature.—The mean was 1.4 above the normal; maximum, 88, at Davisville and Claremont, 11th and 24th; minimum, 11, at Susanville, 9th; greatest monthly range, 50, at Winchester; least monthly range, 28, at Berkeley.

Precipitation.—The average was 0.46 below the normal; greatest monthly, 8.44, at Georgetown; least monthly, trace, at Citrus.

Wind.—Prevailing direction, west.—*J. A. Barwick, Observer, Weather Bureau, Sacramento, director.*

COLORADO.

Temperature.—The mean was 1.0 above the normal; maximum, 78, at Thon, 22d; minimum, —20, at Steamboat Springs, 25th; greatest monthly range, 76, at Thon; least monthly range, 39, at Fruita.

Precipitation.—The average was 0.30 above the normal; greatest monthly, 4.50, at Cumbres; least monthly, 0.04, at Lamar.

Wind.—Prevailing direction, west.—*W. S. Miller, Observer, Weather Bureau, Denver, director.*

FLORIDA.

Temperature.—Maximum, 89, at Manatee, 7th; minimum, 27, at Archer, 13th; greatest monthly range, 55, at Archer; least monthly range, 25, at Key West.

Precipitation.—Greatest monthly, 4.20, at Hypoluxo; least monthly, 0.24, at Ocala.

Wind.—Prevailing direction, northeast.—*E. R. Demain, Observer, Weather Bureau, Jacksonville, director.*

GEORGIA.

Temperature.—Maximum, 82, at Quitman, 8th; minimum, 18, at Diamond, 13th; greatest monthly range, 53, at Americus; least monthly range, 34, at Monticello.

Precipitation.—Greatest monthly, 5.98, at La Grange; least monthly, 1.93, at Hephzibah.

Wind.—Prevailing direction, northeast.—*Park Morrill, Local Forecast Official, Weather Bureau, Atlanta, director.*

ILLINOIS.

Temperature.—The mean was 4.9 above the normal of the last 17 years; maximum, 72, at Golconda, 24th; minimum, —3, at Lanark, 15th.

Precipitation.—The average was 0.35 below the normal; greatest monthly, 5.05, at Centralia; least monthly, 0.60, at Hennepin.

Wind.—Prevailing direction, northwest.—*John Craig, Observer, Weather Bureau, Springfield, director.*

INDIANA.

Temperature.—The mean was 5.0 above the normal; maximum, 70, at Marengo, 24th; minimum, 2, at Angola, 16th; greatest monthly range, 57,

at Connersville; least monthly range, 40, at De Gonia Springs.

Precipitation.—The average was 0.27 below the normal; greatest monthly, 9.26, at Huntingburgh; least monthly, 1.64, at Michigan City.

Wind.—Prevailing direction, northwest.—*Prof. H. A. Huston, La Fayette, director; C. F. R. Wappenhans, Local Forecast Official, Weather Bureau, assistant.*

IOWA WEATHER AND CROP SERVICE.

Temperature.—The mean was 6.0 above the normal; maximum, 68, at Glenwood, 17th; minimum, —20, at Bancroft, 15th; greatest monthly range, 68, at Glenwood; least monthly range, 41, at Winterset.

Precipitation.—The average was slightly below the normal; greatest monthly, 2.18, at Cedar Rapids; least monthly, 0.12, at Elkader.

Wind.—Prevailing direction, northwest.—*J. R. Sage, Des Moines, director; G. M. Chappel, Local Forecast Official, Weather Bureau, assistant.*

KANSAS.

Temperature.—The mean was 4.7 above the normal; maximum, 80, at Shields, 1st; minimum, —2, at Leoti, 8th and 9th; greatest monthly range, 79, at Shields; least monthly range, 45, at Independence.

Precipitation.—The average was 2.14 above the normal; greatest monthly, 7.11, at Fort Scott; least monthly, 0.25, at Weskuu.

Wind.—Prevailing direction, north.—*Prof. J. T. Lovewell, Topeka, director; T. B. Jennings, Observer, Weather Bureau, assistant.*

KENTUCKY.

Temperature.—The mean was about 3.0 above the normal; maximum, 70, at Bowling Green, 24th; minimum, 11, at Lexington and Springfield, 12th; greatest monthly range, 57, at Springfield; least monthly range, 32, at Richmond.

Precipitation.—The average was nearly 2.00 below the normal; greatest monthly, 4.50, at Caddo; least monthly, 1.75, at South Fork.

Wind.—Prevailing direction, southwest.—*Frank Burke, Observer, Weather Bureau, Louisville, director.*

LOUISIANA.

Temperature.—The mean was 4.3 above the normal; maximum, 81, at Luling, 8th and 20th; minimum, 25, at Winnsborough, 12th; greatest monthly range, 54, at Winnsborough; least monthly range, 26, at Port Eads.

Precipitation.—The average was 1.97 below the normal; greatest monthly, 6.76, at Monroe; least monthly, 0.04, at New Orleans.

Wind.—Prevailing direction, northeast.—*George E. Hunt, Local Forecast Official, Weather Bureau, New Orleans, director.*

MARYLAND.

Temperature.—Maximum, 64, at Cumberland (b), 1st; minimum, —8, at Boettcherville, 6th; greatest monthly range, 68, at Boettcherville; least monthly range, 38, at Leonardtown.

Precipitation.—Greatest monthly, 4.07, at Solomons; least monthly, 1.56, at Great Falls.

Wind.—Prevailing direction, northeast.—*Dr. William B. Clark, Johns Hopkins University, Baltimore, director; Prof. Milton Whitney, Maryland Agricultural College, secretary and treasurer; C. P. Cronk, Observer, Weather Bureau, in charge.*

MICHIGAN.

Temperature.—Maximum, 59, at Mottville, 24th; minimum, —24, at Cheboygan, 13th; greatest monthly range, 70, at Standish; least monthly range, 35, at Fairview.

Precipitation.—Greatest monthly, 3.67, at Berlin; least monthly, 0.76, at Standish.

Wind.—Prevailing direction, southeast.—*E. A. Evans, Local Forecast Official, Weather Bureau, Detroit, director.*

MISSISSIPPI.

Temperature.—The mean was 3.7 above the normal; maximum, 80, at Port Gibson, 6th, and at Hattiesburgh, 6th, 7th, and 8th; minimum, 28, at Louisville, 17th, and at Enterprise, 12th; greatest monthly range, 51, at Port Gibson and Enterprise; least monthly range, 31, at Ship Island.

Precipitation.—The average was 2.49 below the normal; greatest monthly, 5.81, at Waynesborough; least monthly, 0.18, at Natchez.

Wind.—Prevailing directions, north and northeast.—*R. B. Fulton, Observer, Weather Bureau, University, director.*

MISSOURI.

The month was remarkable for high temperature, excess in rainfall, and the large number of cloudy days.

Temperature.—The mean was 6.3 above the normal; maximum, 71, at Oak Ridge, 24th; minimum, 2, at Harris, 15th; greatest monthly range, 57, at Adrian; least monthly range, 38, at Gordonville.

Precipitation.—The average was 1.96 above the normal; greatest monthly, 8.83, at Appleton City; least monthly, 1.28, at Harris.

Wind.—Prevailing direction, northwest.—*Levi Chubbuck, Secretary of State Board of Agriculture, Columbia, director; J. H. Smith, Observer, Weather Bureau, assistant.*

MONTANA.

Temperature.—The mean was 7.0 above the normal; maximum, 66, at Choteau, 26th; minimum, —24, at Fort Buford, 14th.

Precipitation.—The average was slightly below the normal; greatest monthly, 1.36, at Martinsdale; least monthly, 0.02, at Boulder.—*E. J. Glass, Observer, Weather Bureau, Helena, director.*

NEBRASKA.

Temperature.—Maximum, 71, at Belvidere, 25th; minimum, —10, at North Loup, 8th, and at Fort Niobrara, 15th; greatest monthly range, 78, at Fort Niobrara; least monthly range, 40, at Falls City.

Precipitation.—Greatest monthly, 3.51, at Minden; least monthly, 0.17, at York.

Wind.—Prevailing direction, northwest.—*Prof. Goodwin D. Swezey, Crete, director; G. A. Loveland, Observer, Weather Bureau, assistant.*

NEVADA.

Temperature.—The mean was 0.1 below the normal; maximum, 65, at Hawthorne, 28th, and at South Camp, 27th; minimum, —18, at Halleck, 8th; greatest monthly range, 76, at Halleck; least monthly range, 19, at Austin.

Precipitation.—The average was 0.18 below the normal; greatest monthly, 3.77, at Palmetto; least monthly, 0.12, at Halleck.

Wind.—Prevailing direction, south.—*Prof. Charles W. Friend, Carson City, director; F. A. Carpenter, Observer, Weather Bureau, assistant.*

NEW ENGLAND METEOROLOGICAL SOCIETY.

Temperature.—The mean was 1.8 above the normal; maximum, 54, at Lake Cochituate, 19th; minimum, —26, at West Milan, 17th; greatest monthly range, 74, at West Milan; least monthly range, 32, at Provincetown.

Precipitation.—The average was 1.66 below the normal; greatest monthly, 5.20, at Calais; least monthly range, 0.50, at Cornwall.

Wind.—Prevailing direction, northwest.—*Prof. William H. Niles, Boston, Mass., president; Prof. Winslow Upton, Providence, R. I., secretary; J. Warren Smith, Observer, Weather Bureau, assistant.*

NEW JERSEY.

Temperature.—The mean was 2.0 above the normal; maximum, 58, at Trenton and Lancewood, 8th; minimum, 7, at Deckertown, Dover, and Newton, 14th; greatest monthly range, 51, at Dover; least monthly range, 37, at Newark and Oceanic.

Precipitation.—The average was 1.83 below the normal; greatest monthly, 3.62, at Freehold; least monthly, 0.67, at Junction.

Wind.—Prevailing direction, northwest.—*E. W. McGann, Observer, Weather Bureau, New Brunswick, director.*

NEW MEXICO.

Temperature.—The mean was slightly above the normal; maximum, 73, at La Luz, 23d; minimum, —7, at Dulce, 11th; greatest monthly range, 67, at Folsom; least monthly range, 39, at Albuquerque.

Precipitation.—The average was considerably above the normal; greatest monthly, 3.95, at Chama; least monthly, 0.13, at Antelope Springs.

Wind.—Prevailing direction, west.—*H. B. Hersey, Observer, Weather Bureau, Santa Fe, director.*

NEW YORK.

Temperature.—The mean was 1.4 above the normal; maximum, 55, at Rome, 23d; minimum, —17, at Madison Barracks, 6th, and at Canton, 17th; greatest monthly range, 70, at Rome; least monthly range, 32, at Fort Columbus.

Precipitation.—The average was 0.45 below the normal; greatest monthly, 5.42, at Cherry Creek; least monthly, 0.19, at Au Sable Forks.

Wind.—Prevailing direction, northwest.—*Prof. E. A. Fuertes, Dean of the College of Civil Engineering, Cornell University, Ithaca, director; R. M. Hardinge, Observer, Weather Bureau, assistant.*

NORTH CAROLINA.

Temperature.—The mean was 1.3 below the normal; maximum, 72, at Asheville, 22d; minimum, 12, at Pittsborough, 13th; greatest monthly range, 54, at Concord and Chapel Hill; least monthly range, 36, at Hatteras.

Precipitation.—The average was 0.88 below the normal; greatest monthly, 7.12, at Hatteras; least monthly, 1.30, at Mount Airy.

Wind.—Prevailing direction, northeast.—*Dr. Herbert B. Battle, Raleigh, director; C. F. von Herrmann, Observer, Weather Bureau, assistant.*

NORTH DAKOTA.

Temperature.—The mean was 4.3 below the normal; maximum, 62, at Medora, 25th; minimum, —41, at Willow City, 15th; greatest monthly range, 83, at Jamestown, least monthly range, 58, at Napoleon.

Precipitation.—The average was 0.02 below the normal; greatest monthly, 1.15, at Saint John; least monthly, 0.25, at Grafton.

Wind.—Prevailing direction, northwest.—*W. H. Fallon, Observer, Weather Bureau, Bismarck, director.*

OHIO.

Temperature.—The mean was 4.0 above the normal; maximum, 74, at Portsmouth, 23d; minimum, —1, at McConnellsville, 5th, and at Granville, 6th.

Precipitation.—The average was 0.82 below the normal; greatest monthly, 6.20, at Piqua; least monthly, 1.08, at Pomeroy.

Wind.—Prevailing direction, south.—*Prof. B. F. Thomas, Columbus, director; C. M. Strong, Observer, Weather Bureau, secretary and assistant.*

OKLAHOMA.

Temperature.—Maximum, 80, at Mangum, 10th; minimum, 10, at Fort Supply, 8th; greatest monthly range, 62, at Fort Supply; least monthly range, 46, at Guthrie.

Precipitation.—Greatest monthly, 5.14, at Keokuk Falls; least monthly, 0.24, at Mangum.

Wind.—Prevailing direction, north.—*Louis Dorman, Observer, Weather Bureau, Oklahoma City, director.*

PENNSYLVANIA.

Temperature.—The mean was 3.0 above the normal; maximum, 62, at Pittsburg, 25th; minimum, —18, at Saegerstown, 18th; greatest monthly range, 71, at Saegerstown; least monthly range, 37, at Swarthmore.

Precipitation.—Greatest monthly, 4.48, at Blue Knob; least monthly, 0.48, at Swarthmore.

Wind.—Prevailing direction, northwest.—*Under direction of the Franklin Institute, Philadelphia; H. L. Ball, Observer, Weather Bureau, assistant.*

SOUTH CAROLINA.

Temperature.—Maximum, 73, at Charleston, 15th; minimum, 18, at Winnsborough, 12th.

Precipitation.—Greatest monthly, 6.04, at Evergreen.

Wind.—Prevailing directions, northwest and southwest.—*A. P. Butler, Observer, Weather Bureau, Columbia, director.*

SOUTH DAKOTA.

Temperature.—The mean was 1.3 above the normal; maximum, 61, at Cross, 21st; minimum, —26, at Webster, 15th; greatest monthly range, 73, at Clark, Watertown, and Webster; least monthly range, 54, at Parkston.

Precipitation.—The average was 0.06 above the normal; greatest monthly, 1.52, at Mitchell; least monthly, 0.03, at Aberdeen.

Wind.—Prevailing direction, northwest.—*S. W. Glenn, Local Forecast Official, Weather Bureau, Huron, director.*

TENNESSEE WEATHER CROP SERVICE.

Temperature.—The mean was 2.0 below the normal; maximum, 71, at Memphis, 24th; minimum, 16, at Johnson City, 7th; greatest monthly range, 50, at Dunlap; least monthly range, 29, at Missionary Ridge.

Precipitation.—The average was 2.08 below the normal; greatest monthly, 5.44, at Sharp; least monthly, 1.51, at Andersonville.—*J. B. Marbury, Local Forecast Official, Weather Bureau, Nashville, director.*

TEXAS.

Temperature.—The mean was 9.1 above the normal; maximum, 89, at Brownsville, 11th; minimum, 13, at Dallas, 12th; greatest monthly range, 70, at Dallas; least monthly range, 28, at Galveston.

Precipitation.—The average was 0.46 below the normal; greatest monthly, 5.05, at Palestine; least monthly, 0.00, at Sugar Land.—*D. D. Bryan, Galveston, director; I. M. Cline, Local Forecast Official, Weather Bureau, assistant.*

UTAH.

Temperature.—Maximum, 73, at Moab, 20th; minimum, —13, at Loa, 9th; least monthly range, 33, at Snowville.

Precipitation.—Greatest monthly, 1.52, at Ogden; least monthly, 0.20, at Soldiers Summit.—*G. N. Salisbury, Observer, Weather Bureau, Salt Lake City, director.*

VIRGINIA.

Temperature.—Maximum, 74, at Richmond, 2d and 3d; minimum, —8, at Dale Enterprise, 6th; greatest monthly range, 71, at Dale Enterprise; least monthly range, 38, at Birdsneat.

Precipitation.—Greatest monthly, 5.32, at Norfolk; least monthly, 1.32, at Blacksburg.

Wind.—Prevailing direction, northeast.—*Dr. E. A. Craighill, Lynchburg, director; J. N. Ryker, Observer, Weather Bureau, assistant.*

WASHINGTON.

Temperature.—The mean was 3.7 above the normal; maximum, 65, at Seattle, 27th, and at Vancouver, 24th; minimum, 4, at Waterville, 5th and 6th; greatest monthly range, 46, at Coulee City and Fort Spokane; least monthly range, 16, at Tatoosh Island.

Precipitation.—The average was 2.35 below the normal; greatest monthly, 6.79, at Neah Bay; least monthly, 0.11, at Vashon.

Wind.—Prevailing direction, south.—*E. B. Olney, Observer, Weather Bureau, Olympia, director.*

WEST VIRGINIA.

Temperature.—Maximum, 72, at Elizabeth, 1st; minimum, —12, at Beverly, 6th; greatest monthly range, 73, at Moorefield; least monthly range, 49, at Wheeling.

Precipitation.—Greatest monthly, 3.17, at Parkersburgh; least monthly, 0.98, at Nuttallburgh.

Wind.—Prevailing direction, west.—*W. W. Dent, Observer, Weather Bureau, Parkersburgh, director.*

WISCONSIN.

Temperature.—The mean was about 5.0 above the normal; maximum, 57, at Prairie du Chien, 25th; minimum, —34, at Butternut, 18th, and at Hayward, 16th; greatest monthly range, 82, at Butternut; least monthly range, 36, at Cadiz.

Precipitation.—The average was about normal; greatest monthly, 3.15, at Embarrass; least monthly, 0.75, at Delavan.

Wind.—Prevailing direction, northwest.—*W. L. Moore, Local Forecast Official, Weather Bureau, Milwaukee, director.*

WYOMING.

Temperature.—Maximum, 77, at Casper, 25th; minimum, —34, at La Barge, 8th; greatest monthly range, 92, at La Barge; least monthly range, 44, at Atlantic City.

Precipitation.—Greatest monthly, 1.17, at Cheyenne; least monthly, 0.00, at Bitter Creek.

Wind.—Prevailing direction, west.—*E. M. Ravenscraft, Observer, Weather Bureau, Cheyenne, director.*

CONTRIBUTIONS AND ORIGINAL ARTICLES.

MEAN HEIGHTS AND VELOCITIES OF THE DIFFERENT CLOUD FORMS.

(Measured at Blue Hill Observatory, Mass.)

The following tables show the mean heights and velocities of the different forms of clouds in summer, winter, and for the year. These tables were prepared from records of the Observatory by Mr. H. H. Clayton, local forecast official, Weather Bureau, by permission of Mr. A. Lawrence Rotch, F. R. M. S., proprietor of the Blue Hill Meteorological Observatory.

SUMMER.

Name of cloud.	Number of clouds.	Height in feet.			Velocity in miles.		
		Mean.	Max.	Min.	Mean.	Max.	Min.
Cirrus	42	32,557	48,984	17,691	63.8	136	10
Cirro-stratus	20	26,392	39,810	7,513	55.0	153	4
Cirro-cumulus	29	17,720	39,534	7,513	36.2	87	11
Upper cumulus	12	6,572	10,919	3,638	21.0	37	6
Cumulus	104	4,833	11,752	1,972	19.5	46	5
Cumulo-stratus	12	5,177	9,029	2,051	21.3	60	15
Stratus	20	2,513	6,726	394			
Nimbus	27	2,336	5,643	213			
Scud	14	2,556	3,983	1,099	15.4	33	4

WINTER.

Cirrus	28	26,414	37,926	12,349	114.3	231	28
Cirro-stratus	7	19,292	27,926	22,386	69.3	127	46
Cirro-cumulus	8	16,280	28,117	14,997	80.1	183	40
Cumulus	26	4,531	8,825	1,745	32.0	57	7
Cumulo-stratus	6	3,703	6,752	984	28.9	47	14
Stratus	14	3,012	9,613	394			
Scud	3	1,722	2,434	984	23.9	27	21

Mean heights and velocities of different cloud forms—Continued.
YEAR (mean of summer and winter).

	Cirrus.	Cirro-stratus.	Cirro-cumulus.	Cumulus.	Cumulo-stratus.	Stratus.	Nimbus.	Scud.
Number of clouds	70	27	37	130	18	34	27	17
Mean height	29,485	22,841	16,998	4,682	4,472	2,762	2,339	2,139
Maximum height	48,984	39,810	39,534	11,752	9,029	9,613	5,643	3,983
Minimum height	12,391	7,513	7,513	1,745	984	394	213	984
Mean velocity	89.0	62.2	58.2	25.7	25.1			19.6
Maximum velocity	231	153	183	57	60			33
Minimum velocity	10	4	11	5	14			4

NOTE.—The forms of cloud to which the names in this table apply are defined in the General Instructions to Observers of the Weather Bureau.

SOME OBSERVATIONS OF WIND DIRECTION AT DIFFERENT ALTITUDES AROUND WEST INDIA CYCLONES.

Some very interesting observations of the difference in direction of upper and lower air currents in the vicinity of the centers of West India cyclones were made by the Weather Bureau observer, Mr. H. B. Boyer, at Key West, Fla., in 1891. The direction of the current was determined by the motion of clouds, the observations being made with a nephoscope.

The winds at the surface of the earth in the vicinity of a cyclone blow round the center in the Northern Hemisphere in a direction contrary to the direction of motion of the hands of a watch held with the face uppermost. The direction of motion is inclined in toward the center of the cyclone. With increasing height in the air the direction of the air current is not so much